

WHAT IS CLAIMED IS:

1. A picture encoding method comprising:
receiving an input video signal,
encoding the video signal using a reference
5 picture signal to generate a video code stream;
encoding the reference picture signal to generate
a reference picture code stream, and
multiplexing the video code stream with the
reference picture code stream to generate an output
10 code stream.
2. A picture encoding method according to
claim 1, wherein encoding the video signal includes
storing in a frame memory a local decoded picture
signal generated in encoding the video signal, and
15 encoding the reference picture signal including
encoding the reference picture signal read out from the
frame memory.
3. A picture encoding method according to
claim 1, wherein the reference picture signal includes
20 a plurality of picture signals obtained by subjecting
the encoded moving picture to a local decoding.
4. A picture encoding method according to
claim 1, wherein encoding the video signal encodes the
video signal in units of a macroblock, encoding the
25 reference picture signal encodes the reference picture
signal in units of a macroblock, and the multiplexing
multiplexes the video code stream with the reference

picture code stream in units of a macroblock.

5. A picture encoding apparatus comprising:

a receiving unit configured to receive an input video signal,

5 a first encoding unit configured to encode the video signal by using a reference picture signal to generate a video code stream,

a second encoding unit configured to encode the reference picture signal to generate a reference
10 picture code stream, and

a multiplexing unit configured to multiplex the video code stream and the reference picture code stream to generate an output code stream.

6. A picture encoding apparatus according to
15 claim 5, wherein the first encoding unit includes a frame memory which stores a local decoded picture signal generated in encoding the video signal as the reference picture signal, and the second encoding unit encodes the reference picture signal read out from the
20 frame memory.

7. A picture encoding apparatus according to claim 5, wherein the reference picture includes a plurality of pictures obtained by subjecting the encoded moving picture to a local decoding.

25 8. A picture encoding apparatus according to claim 5, wherein the first encoding unit includes a frame memory which stores a local decoded picture

signal generated in encoding the video signal as the reference picture signal, and a motion compensation unit configured to subject to motion compensation the reference picture signal read out from the frame
5 memory, and the second encoding means encodes the reference picture signal motion-compensated by the motion compensation unit.

9. A picture encoding apparatus according to claim 5, wherein the multiplexing unit includes a first
10 determination unit configured to determine whether or not the input code stream containing the video code stream and the reference picture code stream is the reference picture code stream, a second determination unit configured to, when the first determination unit
15 determines that the input code stream is the reference picture code stream, determine whether or not to output the reference picture code stream, and an output unit configured to output the input code stream as the output code stream in accordance with a result of the
20 second determination unit.

10. A picture encoding method according to claim 5, wherein the first encoding unit encodes the video signal in units of a macroblock, the second encoding unit encodes the reference picture signal in
25 units of a macroblock, and the multiplexing unit multiplexes the video code stream with the reference picture code stream in units of a macroblock.

11. A picture decoding method comprising:

receiving an input code stream containing a video
code stream obtained by encoding a video signal and a
reference picture code stream obtained by encoding a
5 reference picture signal;

decoding the reference picture code stream
contained in the input code stream to generate a first
reference picture signal; and

10 decoding the video code stream contained in the
input code stream by selectively using one of a second
reference picture signal obtained from a previous
picture signal and the first reference picture signal
to generate a playback picture signal.

12. A picture decoding method according to
15 claim 11, wherein decoding the video code stream
includes storing in a frame memory the first reference
picture signal and the playback picture signal as the
second reference picture signal, and decoding the video
code stream by selectively reading out the second
20 reference picture signal and the first reference
picture signal from the frame memory.

13. A picture decoding method according to
claim 11, wherein decoding the video code stream
includes storing the playback picture signal as the
25 second reference picture signal in the frame memory,
and decoding the video code stream by replacing the
second reference picture signal stored in the frame

memory with the first reference picture signal.

14. A picture decoding apparatus comprising:

an input unit configured to receive an input code stream containing a video code stream obtained by encoding a video signal and a reference picture code stream obtained by encoding a reference picture signal;

5 a first decoding unit configured to decode the reference picture code stream contained in the input code stream to generate a first reference picture signal; and

10 a second decoding unit configured to decode the video code stream contained in the input code stream by selectively using one of a second reference picture signal obtained from a previous picture signal and the first reference picture signal to generate a playback picture signal.

15 15. A picture decoding apparatus according to claim 14, wherein the second decoding unit includes a frame memory which stores the playback picture signal as the second reference picture signal, together with the first reference picture signal, and decodes the video code stream by selectively reading out the second reference picture signal and the first reference picture signal from the frame memory.

20 16. A picture decoding apparatus according to claim 14, wherein the first decoding unit decodes a motion-compensated reference picture code stream which

is contained in the input code stream to generate the first reference picture signal, and the second decoding unit includes a frame memory which stores the playback picture signal as the second reference picture signal, and a motion compensation unit configured to subject one of the second reference picture signal read out from the frame memory and the first reference picture signal to motion compensation.

17. A picture decoding apparatus according to claim 14, further comprising a first determination unit configured to determine whether or not the input code stream is the reference picture code stream, a second determination unit configured to, when the first determining means determines that the input code stream is the reference picture code stream, determine whether or not to decode the reference picture code stream, and a decoding unit configured to decode the input code stream in accordance with a determination result of the second determination unit.

18. A picture decoding apparatus according to claim 14, wherein the second decoding unit includes a frame memory which stores the playback picture signal as the second reference picture signal, and decodes the video code stream by replacing the second reference picture signal stored in the frame memory with the first reference picture signal.

19. A picture encoding program stored in a

computer readable medium, the program including:

means for instructing a computer to encode the video signal using a reference picture signal to generate a video code stream;

5 means for instructing the computer to encode the reference picture signal to generate a reference picture code stream; and

means for instructing the computer to multiplex the video code stream with the reference picture code stream to generate an output code stream.

10 20. A picture encoding program stored in a computer readable medium, the program including:

means for instructing a computer to receive an input code stream containing a video code stream
15 obtained by encoding a video signal and a reference picture code stream obtained by encoding a reference picture signal;

means for instructing the computer to decode the reference picture code stream contained in the input code stream to generate a first reference picture
20 signal; and

means for instructing the computer to decode the video code stream contained in the input code stream by selectively using one of a second reference picture
25 signal obtained from a previous picture signal and the first reference picture signal to generate a playback picture signal.

21. A video code stream obtained by multiplexing a
video code stream obtained by subjecting an input
signal to motion compensation predictive encoding and a
reference picture code stream obtained by independently
5 encoding a reference picture signal used for the motion
compensation predictive encoding.